

# TAXI

**“Total AXess Information”**

*The newest CABS driver on  
the road with luxury  
enhancements for the same  
Fare!*

## Contents

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Table of Contents	Page 1
1.0 Current Landscape	Page 2
1.1 Technology to the Rescue?	Page 2
1.2 Departmental Views Remain the Norm	Page 3
1.3 Missed Revenue Opportunities	Page 4
1.4 Profitability Analysis on “All you can eat” Plans	Page 4
1.5 Validation of Third Party Invoices	Page 5
1.6 Switch to Bill Reconciliation Remains Difficult	Page 5
1.7 The Future of Carrier Access Billing	Page 6
1.8 2008 Summary	Page 7
1.9 2008 Recommendations	Page 7
1.10 ROI in and beyond	Page 8

# *Usage and Carrier Access in 2008*

## *1.0 Current Landscape*

Mergers and acquisitions, declining profit margins and an aggressive competitive landscape occur due to the carriers' need to improve, protect, and maintain their revenue stream. For many companies, Carrier Access can represent up to 75% of billable revenue while remaining one of the largest expense items. Given the multitude of challenges faced by service providers, traditional usage assurance solutions have failed to evolve in a manner that preserves the integrity of the telecom's revenue stream:

- Carriers continue to experience extreme margin management pressures where mature revenue assurance (RA) departments (for those carriers that have an RA department) still lack a "holistic" view of their usage. It is astounding that with all of the Revenue Assurance initiatives over the past decade, industry consensus remains that at least three percent of all event records fail to reach the billing stage. At the same time, many carriers continue to pay CABS invoices based on an acceptable deviation from historical norm. Meanwhile, increased regulatory pressures push for accurate event metering and rating.
- Industry data indicates that a minimum of five percent of today's RBOC traffic received by the CLEC segment is "phantom" traffic where that number can be as high as thirty percent for the smaller independent carriers. This equates to billions of dollars of lost revenue for the rural and CLEC carriers. Work with customers in these segments indicates that most carriers lack the data mining capability to determine originating and terminating call traffic. Accordingly, this makes it impossible to accurately grant or reject a carrier bill payment.
- While Carriers are focusing efforts on customer acquisition and retention, they continue to put pressure on the IT infrastructure to implement usage assurance solutions. Concurrently, IT departments face the challenge of maintaining the staff/infrastructure with the skills to identify the challenges and/or problems with usage. All of these variables remain a time consuming and expensive proposition.

As identified in this whitepaper, usage and Carrier Access assurance remains a very fragmented and complex issue at the executive and director levels. Until industry CFOs have a clear cause and effect understanding of all these variables, they will be skeptical of the \$/ROI initiatives. Most Billing Directors don't have the time to drive strategic initiatives to optimize the Revenue Assurance and CABS functions.

## *1.1 Technology to the Rescue?*

To help address these usage challenges, carriers are using a variety of technical solutions to correct the problem. The most prevalent approaches appear to fall into three categories: event validation software, SS7 technology and call-event warehouses.

**Validation tools:** Carriers often implement usage validation tools for their CABS and End User Billing. The challenge with most of these usage validation tools is that they deal with post-edited traffic and only provide a view of what usage has reached the billing stage. Accordingly, a carrier only sees part of the story and still lacks the ability to audit and validate usage on a switch to bill basis.

**SS7:** There are several carriers who have made investments in the SS7 technology, especially to address the challenges of the phantom traffic. SS7 has many advantages, but there are numerous issues to be aware of when considering SS7 approach to usage assurance:

- Additional Cost:
  - If a carrier has older network elements, SS7 analyzers will require an upgrade to the recording devices
  - SS7 event validation for CABS will require coordination and additional cost with all network interface partners
  - SS7 Analyzers do not provide the database mechanism to validate usage against other system provided data. It is important to compare SS7 data with all other data feeds (AMA recordings, EMI processing, third party feeds), which will require additional IT infrastructure and subject matter expertise
- SS7 information is not an industry standard billable format
- SS7 may not contain information about third party vendors (i.e.-800 service) unless the network is configured to do so
- If a tandem provider does not provide accurate or complete billing information, the SS7 tools may not be able to identify phantom traffic
- VOIP to PSTN calls may not reflect true jurisdictional information being sent over data trunks. The true end points of the call may not be accurate

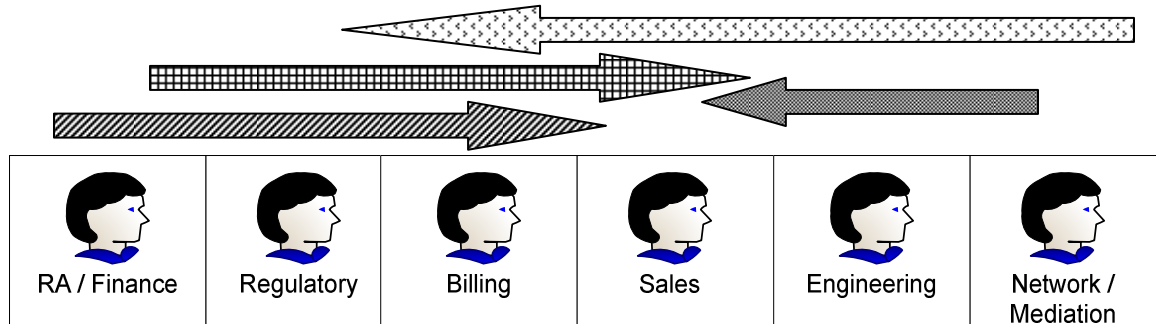
In summary, SS7 provides a tremendous amount of intelligence about the network traffic but it does not offer all the answers for CABS and usage assurance.

**Call Event Warehouses:** The use of first generation call event warehouses is becoming more common in the industry. Most of these warehouses only store internal traffic and not external carrier traffic. Accordingly, most implementations fail to leverage the power of a usage warehouse across the enterprise because they typically provide nothing more than limited payment assurance functionality. Payment Assurance functionality is certainly beneficial to a carrier, but it only provides a partial view of usage for all carrier departments. Lastly, most carriers lack the resources to leverage data warehouse functionality due to the volumes, complexity and interdependencies of usage/billable events.

## ***1.2 Departmental Views Remain the Norm***

One of the most common, and high impact factors on revenue leakage, is the lack of communication that occurs from all the departments working with a carrier's usage. We consistently see a pronounced lack of communication and coordination between Billing/Switch Techs/Mediation/Network/ Operations/ IT/ Regulatory/ Sales/ RA/CABS/and Legal departments. Common phrases include, "Why do they need this information?"

## FRAGMENTED AND DIFFERENT USAGE VIEWS



There are several potential reasons for this lack of coordination:

- Lack of understanding of each department’s responsibility for the use of the data
- Continued OSS and BSS segmentation as the industry has matured
- Difficulty in finding the level of expertise required to fully understand telephony usage in one person or department (does ‘one person’ apply here?)

Commonly, most carriers lack a “usage champion” who truly understands how to roll up key usage operating metrics in a way that makes sense at the department and enterprise level.

Usage is the common thread amongst all of these departments, yet carriers lack a current and clear understanding of **the network users, and the associated revenue stream.**

### *1.3 Missed Revenue Opportunities*

Carriers continue to grapple with various regulations by the FCC and state utility commissions regarding what the “next model” will be when it comes to compensation for the use of the network. As regulations change, carriers must ensure the proper billing out of the appropriate tariffs in their CABS systems. In many instances, carriers have missed revenue opportunities due to:

- A lack of tariff rate verification that results in billing disputes
- Carrier caution to change mediation rules
- Non-existent inter-carrier agreements
- Accepting data records as fact from various carriers without validating the data

### *1.4 Profitability Analysis on “All you can eat” plans*

Although flat rate plans have become the norm for some providers, most carriers still lack the ability to determine profitability on account/route/product/package plan. Most companies will determine P&L at some reporting timeframe (monthly/quarterly/annual) and all applicable costs associated with generating a revenue dollar.

The inability to quickly determine the profitability at the account or offering level results in lost opportunities and/or un-necessary expenses.



### 1.5 Validation of Third Party Invoices

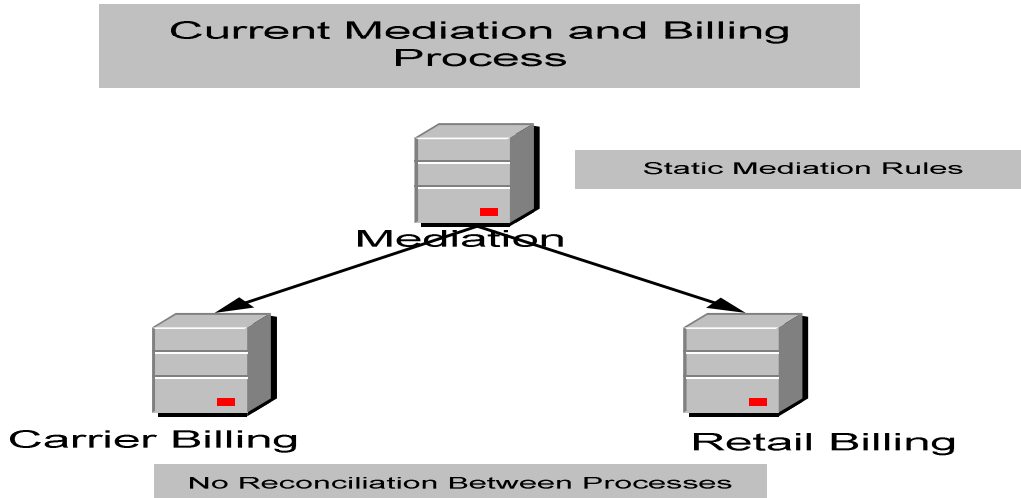
Carriers receive invoices every month for Directory Assistance/Operator Assistance/800/900 traffic. In 2008, most continue to pay the invoices without validating the information because they:

- Do not want to impact the production billing environment
- Lack of hardware and database infrastructure to analyze the event records
- Do not want to pursue a path of dispute resolution.

### 1.6 Switch to Bill Reconciliation Remains Difficult

The carriers’ ability to reconcile usage between inbound/outbound traffic, what is billed and what needs to be paid remains an elusive task.

One of the primary causes is that there are three separate applications where limited reconciliation occurs.



The Mediation application feeds both Carrier Access Billing and Retail Billing on pre-determined rules established years ago. As mentioned above, these rules are rarely reviewed.

The lack of reconciliation between these three processes/applications results in the following:

- Lost CABS revenue (i.e.-“dropping” call records)
- High level of difficulty to prepare and pass audits (i.e.- internal or Sarbanes-Oxley compliance for usage audit trail)
- Heightened regulatory security measures

## 1.7 The Future of Carrier Access Billing

The exact future of Carrier Access Billing is unknown, but industry sources indicate it will continue to exist in some fashion. Today, tariff rates are in a state of arbitrage due to the pricing difference between interstate, intrastate and intra-LATA traffic. If regulations require the implementation of cost-based services, then it will be necessary to capture the actual costs of providing such services to other carriers.

Although there are several other proposals to the FCC (i.e.-Western Wireless and Frontier Communications proposals), it is most interested in:

Proposal	Proponents	Key Features of Plan	Notes
<b>Inter-Carrier Compensation Forum (ICF)</b>	Larger Carriers such as SBC, Sprint, Level 3, MCI/Verizon	<ol style="list-style-type: none"> <li>1) Uniform Network Inter-Connection</li> <li>2) Uniform Rate Structure</li> <li>3) Uniform Rate level</li> <li>4) New Universal Service Plan</li> <li>5) Proponents of Bill &amp; Keep</li> </ol>	Looking for uniform termination rate of .000175/minute in four years followed by phase out of termination compensation. A new USF protocol would supplement lost revenue.
<b>Rural Alliance</b> (Merger of Expanded Portland Group + Rational Inter-Carrier Compensation)	Over 1000 Rural Carriers	<p>Phase 1:</p> <ol style="list-style-type: none"> <li>A) Eliminate enhanced Service Provider (VOIP) exemption</li> <li>B) Establish truth in Messaging labeling via JIP</li> <li>C) Establish disagreement default termination rates</li> </ol> <p>Phase 2:</p> <ol style="list-style-type: none"> <li>A) All per minute rates at interstate level</li> <li>B) Establish Access Restructure Charge (ARC) for revenue shortfall calculated by NECA</li> </ol> <p>Phase 3</p> <ol style="list-style-type: none"> <li>A) Capacity Based Charges on dedicated traffic</li> <li>B) Common transport service would be based on minutes of use</li> <li>C) Local traffic would remain recip comp</li> </ol>	All Carriers pay cost based fees for interconnection to local exchange networks. Rates should be based on carrier's actual, embedded costs of providing the services and that appropriate charges should apply for both originating and terminating.
<b>Cost Based Inter-Carrier Compensation Coalition</b>	Over 300 Facility based CLEC's	<ol style="list-style-type: none"> <li>1) Oppose Bill &amp; Keep</li> <li>2) Single Termination rate for a geographic area</li> <li>3) Rate would be based on TELRIC methodology</li> <li>4) Lost revenue obtained through higher end user and USF charges</li> </ol>	Believe that the use of the state established TELRIC (Total Elemental Long Run incremental cost) rate for local switching, transport and termination is the correct rate to use. Current national TELRIC average = .000212/MOU

Each carrier segment proposal is written to protect the best interests of its members. However, upon review of all the proposals, it is apparent that a universal Bill & Keep protocol is extremely unlikely in the foreseeable future. Our conclusion is based on the following:

- Each proposal acknowledges (either implicitly or explicitly) the higher costs and operational challenges to provide new and ongoing services in rural America
- There are powerful and numerous constituencies involved in this ongoing debate. Therefore, gaining new policy ratification may require congressional involvement as opposed to that of the FCC

Irrespective of the plan selected, the realistic timeline to implement any of the proposals would be a minimum of seven to ten years. It appears that the selected FCC model will not be finalized until after the 2008 presidential election. Accordingly, each carrier will need a greater understanding of all usage and/or events that touch its network at least through 2015.

### ***1.8 2008 Summary***

Carrier Access and Usage Assurance will remain one of the key aspects for ongoing profitability. Regrettably, carriers will continue to struggle with the associated complexities at the operational, tactical and strategic level.

Although it may have a different look in the future, Carrier Access is not going away. Accordingly, a carrier must attain an accurate and “holistic” understanding of all events that touch its network and customer base. If it does not, it needs to accept the following:

- It has little or no recourse to refute submitted charges
- The loss of terminating access revenues

Accuracy for Carrier Access is achieved through the identification and validation of all applicable call events. A “holistic” understanding of usage means that a carrier can respond to the following questions:

- Who is using their network?
- Do they have an agreement with them?
- Is that agreement/customer/route profitable?

Today’s technology solutions are fragmented approaches that fail to account for all of the complexities and interdependencies necessary to understand usage on a switch to bill basis. These fragmented approaches are systemic of the departmental usage views and will occur regularly in 2008.

### ***1.9 2008 Recommendation...Put it all together***

There is no silver bullet or magic black box in the marketplace for a carrier to achieve operational excellence when it comes to usage assurance. The reality is that it takes an ongoing combination of the right tools, processes and intellectual capital to make sense of all the variables that comprise the usage landscape in 2008. The good news is that a carrier can achieve an accurate and “holistic” understanding of its usage by combining all these three elements.

#### ***The Right Tools***

The best way to achieve a “holistic” understanding of usage is to record and store all network activity via CDR (Call Detail Records) format in a single database. Although it is impossible to “bill” from it, a carrier can store other carrier traffic, along with third party feeds, to validate the charges submitted by other participants.

Centralized data repository:

- Must be capable of reading and analyzing all carrier network event feeds and formats (i.e. AMA, EMI, SS7, CIBER, VOIP)
- Should feed Retail Billing and CABS systems with CDR's that have been exposed and enriched with account, industry and jurisdictional information
- Should be accessible to all user departments that use usage information to perform their function (Billing, RA, Network, Sales, Regulatory, Legal, etc)

This centralized data repository would subsequently provide the venue to compare and validate that all traffic is accounted for and that all carrier charges are correct.

### ***The Right Processes & Intellectual Property***

Although the centralized data repository would be used by the entire enterprise, the logical driver of the usage assurance processes is the RA function. The department would be responsible for supporting the usage reporting requirements of all departments. This support function should be complimented with an ongoing commitment to components such as tariff reviews, usage audit compliance, reducing inter-carrier disputes, reducing MUI, identifying new revenue sources, assuring existing revenue sources and controlling costs.

Regrettably, most RA departments are typically understaffed and lack the usage expertise to support and work across the enterprise. Accordingly, a carrier should decide to make an investment in a resource and/or vendor that is capable of providing the intellectual capital that understands usage on a switch to bill basis.

### ***1.10 ROI for 2008 and Beyond***

The ROI for this approach is extremely compelling when taking into account the following factors:

- Reduction of Revenue Leakage (Industry average is 3% of total revenues)
- The business intelligence value that will be provided across the enterprise
- Improved level of operational efficiencies

If a carrier can't quantify the above factors, it should evaluate its current level of expenditures on CABS and RA initiatives. The analysis conducted on the market's current spending habits indicates carriers should expect more from the vendor community. A carrier should receive RA and CABS for what it is currently spending only on CABS.